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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,004

03/31/2006

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8105-1001

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466 7590 11/19/2008  
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EXAMINER

BAKER, DAVID S

ART UNIT

PAPER NUMBER

2884

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,004	<b>Applicant(s)</b> MINAMIDE ET AL.	
	<b>Examiner</b> DAVID S. BAKER	<b>Art Unit</b> 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16, 18-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed 04 September 2008 has been accepted and entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usami (JP 2002-303574 A) in view of Minami (US 4,874,808 A) and Arnone (US 6,388,799 B1).

Regarding claim 16, Usami discloses a terahertz wave generator with optical components arranged along the optical axis (F:1-4, P:0011). Usami does not disclose expressly that any of these optical components are cycloolefin components or that the superimposed light source that is coaxial with the terahertz wave is visible light. Minami discloses cycloolefin components for use in optical systems (C:16 L:62 thru C:17 L:47). Arnone discloses a terahertz optical imaging system comprising a visible light beam superimposed on the optical axis of a terahertz beam to act as a reference (F:13; C:15 L:60 thru C:16 L:34). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a cycloolefin optical component in a terahertz wave optical system. The motivation for doing so would have been that cycloolefin optical components have desirable dielectric properties with a low absorption and a low

index of refraction. Additionally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize the reference light of Arnone in the system of Usami and Minami. The motivation for doing so would have been to improve the alignment of the light beams with the detector face in order to improve the detection efficiency. At the time the invention was made, the use of visible light as an alignment tool was well known over a range of many arts including optical system alignment and referencing. Additionally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use of a double aperture focusing means. The motivation for doing so would have been to improve the beam focus.

Regarding claim 18, Usami discloses that the frequency of the terahertz waves is 0.1 THz – 100 THz (P:0032).

Regarding claim 19, Usami discloses a terahertz band wave processing apparatus comprising: a terahertz band wave generator for generating predetermined terahertz waves (F:1-4, P:0032); a terahertz wave detector for detecting the terahertz waves (F:1-4, P:0033-0035); a first light transmission regulator for defining a light transmission path between the terahertz wave generator and the terahertz wave detector and regulating the optical axis (F:1-4, P: 0033-0035); a light semi-transmissive plate for transmitting terahertz waves on the optical axis between the first light transmission regulator and the terahertz wave detector and reflecting light incident at a predetermined incident angle (F:1-4, P: 0033-0035); and a second light transmission regulator set on the optical axis between the light semi-transmissive plate and the terahertz wave detector, characterized

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in that predetermined light enters the light semi-transmissive plate as pilot light and is transmitted by said light semi-transmissive plate and the optical axis of said light is superimposed on the optical axis of the reflected terahertz waves and the optical axis of said terahertz waves can be recognized in a simulated manner by the light (F:1-4, P: 0033-0035). Usami does not disclose expressly that a light semi-transparent plate is made of cycloolefin or that the superimposed light source that is coaxial with the terahertz wave is visible light. Minami discloses cycloolefin components for use in optical systems (C:16 L:62 thru C:17 L:47). Arnone discloses a terahertz optical imaging system comprising a visible light beam superimposed on the optical axis of a terahertz beam to act as a reference (F:13; C:15 L: 60 thru C:16 L:34). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a cycloolefin optical component in a terahertz wave optical system. The motivation for doing so would have been that cycloolefin optical components have improved mechanical characteristics resulting in more durable components. Additionally, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize the reference light of Arnone in the system of Usami and Minami. The motivation for doing so would have been to improve the alignment of the light beams with the detector face in order to improve the detection efficiency. At the time the invention was made, the use of visible light as an alignment tool was well known over a range of many arts including optical system alignment and referencing. Finally, at the time the invention was made, it would have been obvious to a person of ordinary skill in

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the art to use of a double aperture focusing means. The motivation for doing so would have been to improve the beam focus.

***Response to Arguments***

4. Applicant's arguments filed 04 September 2008 have been fully considered but they are not persuasive.

Regarding the applicant's argument that Arnone does not disclose the feature of coaxial visible and terahertz radiation, the examiner respectfully disagrees. Arnone clearly discloses coaxial visible and terahertz radiation in Figures 13, 25, and 30.

Regarding the applicant's argument that the prior art of reference does not disclose a line beam, please see the new rejections above as necessitated by the amendments to the claims.

Regarding the applicant's argument that Arnone's parabolic reflectors would be incompatible with a line beam of radiation, the examiner asserts that this argument is moot. The parabolic reflectors are not pertinent; Usami teaches the use of a flat beam splitter (F:1; Element 11) that transmits terahertz radiation while reflecting visible radiation onto a coaxial optical axis with the terahertz radiation. The examiner has merely used the teachings of Arnone to demonstrate the known technique of using visible light coaxially with terahertz radiation to act as an "aiming" light. The specific apparatus of Arnone has not been relied upon in the rejections.

Regarding the applicant's argument that the prior art does not disclose the visible and terahertz radiation being coaxial prior to incidence upon a sample, the examiner asserts that the argument is moot. Such a limitation is only present in the specification of

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the instant application, it is not present in the claims. Since such a limitation is absent from the claims, the prior art is under no requirement to disclose it.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 4,406,526 A – Smith discloses the use of a multiple diaphragm arrangement for focusing light.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID S. BAKER whose telephone number is (571)272-6003. The examiner can normally be reached on MTWRF 10:30am-7:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David S Baker/

Examiner, Art Unit 2884

/David P. Porta/

Supervisory Patent Examiner, Art Unit 2884